REMARKS

Claims 33-35 and 46-56 were pending in the application. Claim 33 and 35 have been amended and claims 46-56 have been canceled. Accordingly, following entry of the amendments presented herein, claims 33-35 will be pending. For the Examiner's convenience, a copy of the claims as they will be pending upon entry of the present amendment, is set forth herein as Appendix A.

Attached hereto is a marked-up version of the changes made to the claims by the current amendments. The attached page is captioned "Version With Markings to Show Changes Made".

Support for the amendments to the claims as well as the new claims can be found throughout the specification and in the claims as originally filed.

No new matter has been added. The foregoing claim amendments and cancellations should in no way be construed as an acquiescence to any of the Examiner's rejections, and have been made solely to expedite the prosecution of the application. Applicants reserve the right to pursue the claims as originally filed in this or a separate application(s).

Correction of Informalities

The Examiner has indicated that that the submitted drawings do not comply with the requirements of 37 C.F.R. § 1.84.

Applicants are submitting herewith formal drawings of Figures 1-10 in compliance with 37 C.F.R. § 1.84 and pursuant to the Informalities Noted by the Draftsperson on Form PTO-948 (paper no. 7).

Accordingly, Applicants request withdrawal of the objection to drawings.

Rejection of Claims 33-35 and 46-56 Under 35 U.S.C. § 112, first paragraph

Claims 33-35 and 46-56 were rejected under 35 U.S.C. §112, first paragraph, "as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." Specifically, the Examiner is of the opinion that the specification does not provide adequate written description for the recitation of antibodies to portions of SEQ ID NO:2 or proteins homologous to SEQ ID NO:2.

Applicants respectfully traverse this rejection. However to expedite prosecution, Applicants have amended claim 33 to remove the phrase "or a portion thereof" and have canceled claims 46-56 drawn to antibodies that bind to proteins comprising homologs and antigenic peptides of SEQ ID NO:2. Applicants reiterate that the foregoing claim amendments and cancellations should in no way be construed as an acquiescence to any of the Examiner's rejections, and have been made solely to expedite the prosecution of the application. Applicants reserve the right to pursue the claims as originally filed in this or a separate application(s).

Notwithstanding, Applicants submit that the present specification contains more than sufficient written description to inform one of ordinary skill in the art that Applicants had possession of the claimed invention at the time the application was filed, as required by §112, first paragraph (see M.P.E.P. 2163.02). According to the Interim Guidelines for Examination of Patent Applications, "[w]ritten description may be satisfied through disclosure of relevant identifying characteristics, *i.e.*, structure, other physical and/or chemical characteristics, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics." *Interim Guidelines for Examination of Patent Applications Under the 35 U.S.C. §112, First Paragraph Written Description Requirement.* Moreover, "[a] specification may, within the meaning of 35 U.S.C., § 112, first paragraph, contain a written description of a broadly written claimed invention without describing all species that [the] claim encompasses." *Utter v. Hiraga*, 845 F.2d 993, 6 USPQ2d 1709 (Fed. Cir. 1988).

Applicants' specification satisfies the foregoing requirements for the claimed invention. Applicants clearly describe the structural features of the NIP45 protein, *i.e.*, the nucleic acid (SEQ ID NO:1) and the amino acid (SEQ ID NO:2) sequence. Applicants describe NIP45 homologs and antigenic peptides and teach, at least at page 11, lines 6-14, of the instant specification, that such proteins can be isolated based on their homology to SEQ ID NO:1 or SEQ ID NO:2 using standard hybridization techniques under stringent hybridization conditions. Applicants also teach the functional characteristics that correlate to the structural characteristics of NIP45 proteins. For example, Applicants teach at least at page 7, lines 2-4 and Example 6 of the instant specification that "NIP45 synergizes with NF-AT to stimulate transcription from promoters containing NF-AT binding sites and, moreover, synergizes with NF-AT and c-Maf to

stimulate transcription from the IL-4 promoter (see Example 6)." Furthermore, claims 46-56 all contain a functional limitation, *i.e.*, the protein must interact with the Rel Homology domain of an NFAT family protein.

Moreover, as recently noted in the *Synopsis of Application of Written Description Guidelines,* the written description requirement for inventions relating to antibodies which bind to a well characterized antigen, such as the presently claimed antibodies which bind to NIP45, *i.e.*, SEQ ID NO:2, does ***not*** require an in depth teaching of the various structural and functional features of such antibodies, since these features are well known in the art. Indeed, Example 16 of the *Guidelines* concludes that a claim to an antibody that binds to a well characterized antigen necessarily satisfies the written description requirement. Based on this Example, the Federal Circuit in *Enzo* stated that the "PTO would find compliance with [35 U.S.C. §112, first paragraph], for a claim to an 'isolated antibody capable of binding to antigen X,' notwithstanding the functional definition of the antibody, in light of 'the well defined structural characteristics for the five classes of antibody, the functional characteristics of antibody binding, and the fact that the antibody technology is well developed and mature'." *Enzo,* 296 F.3d at 1324.

Accordingly, similar to Example 16 of the *Guidelines*, the presently claimed invention involves a well developed technology (one involving antibodies and which bind to an antigen, *i.e.*, SEQ ID NO:2, which is well characterized in Applicants specification) and, thus, in combination with the above-summarized description and Examples in Applicants' disclosure, meets the written description requirement of 35 U.S.C. § 112, first paragraph.

The Examiner also cites *The Regents of the University of California v. Eli Lilly and Company*, 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997) in support of the assertion of the insufficiency of Applicants written description of the claimed antibodies (page 5 of the Office Action). However, the basis for the Federal Circuit's decision in *The Regents of the University of California v. Eli Lilly and Company*, 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997) was that, in that case, the disclosure failed to describe "any common features possessed by members of the [claimed] genus that distinguished them from others" (*Enzo Biochem, Inc. v. Gen Probe Inc.*, 296 F.3d 1316, 1327, 63 U.S.P.Q2d 1609 (Fed. Cir. 2002). In contrast, as pointed out above, Applicants' disclosure ***describes several structural and functional features that are common to every member of the NIP45 proteins.***. Thus, Applicants' disclosure satisfies the written

description requirement of 35 U.S.C. § 112, first paragraph.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 33-36 and 46-56 under 35 U.S.C. § 112, first paragraph.

Rejection of Claim 36 Under 35 U.S.C. § 112, first paragraph

Claims 33-35 and 46-56 were rejected under 35 U.S.C. 112, first paragraph, because specification does not enable any person skilled in the art to which it pertains, or with which it is most clearly connected, to make and use the invention commensurate in scope with these claims. Specifically, the Examiner is of the opinion that the specification, while being enabling for a NIP45 protein as set forth in SEQ ID NO: 2 or encoded by SEQ ID NO: 1, does not reasonably provide enablement for any SEQ ID NO:2 / NIP45 related polypeptide, protein or portion thereof.

Applicants respectfully traverse this rejection. However to expedite prosecution, Applicants have amended claim 33 to remove the phrase "or a portion thereof," and have canceled claims 46-56 drawn to antibodies that bind to proteins comprising homologs and antigenic peptides of SEQ ID NO:2. Applicants reiterate that the foregoing claim amendments and cancellations should in no way be construed as an acquiescence to any of the Examiner's rejections, and have been made solely to expedite the prosecution of the application. Applicants reserve the right to pursue the claims as originally filed in this or a separate application(s).

As acknowledged by the Examiner (page 6 of the instant Office Action), Applicants' specification fully enables the construction of a NIP45 protein as set forth in SEQ ID NO:2 or encoded by SEQ ID NO:1. Applicants also provide ample guidance for constructing **any** NIP45 protein encompassed by the claimed invention. For example, Applicants teach at page 10, lines 13-34 of the instant specification that

> A nucleic acid molecule having the nucleotide sequence of SEQ ID NO: 1, or a portion thereof, can be isolated using standard molecular biology techniques and the sequence information provided herein. For example, a NIP45 cDNA can be isolated from a cDNA library using all or portion of SEQ ID NO: 1 as a hybridization probe and standard hybridization techniques (*e.g.*, as described in Sambrook, J., *et al. Molecular Cloning: A Laboratory Manual. 2nd, ed., Cold Spring Harbor Laboratory,* Cold Spring Harbor, NY, 1989). Moreover, a nucleic acid molecule encompassing all or a portion of SEQ ID NO: 1 can be isolated by

> the polymerase chain reaction using oligonucleotide primers designed based upon the sequence of SEQ ID NO: 1. For example, mRNA can be isolated from cells (*e.g.*, by the guanidinium-thiocyanate extraction procedure of Chirgwin *et al.* (1979) *Biochemistry* 18: 5294-5299) and cDNA can be prepared using reverse transcriptase (*e.g.*; Moloney MLV reverse transcriptase, available from Gibco/BRL, Bethesda, MD; or AMV reverse transcriptase, available from Seikagaku America, Inc., St. Petersburg, FL). Synthetic oligonucleotide primers for PCR amplification can be designed based upon the nucleotide sequence shown in SEQ ID NO: 1. A nucleic acid of the invention can be amplified using cDNA or, alternatively, genomic DNA, as a template and appropriate oligonucleotide primers according to standard PCR amplification techniques. The nucleic acid so amplified can be cloned into an appropriate vector and characterized by DNA sequence analysis. Furthermore, oligonucleotides corresponding to a NIP45 nucleotide sequence can be prepared by standard synthetic techniques, *e.g.*, using an automated DNA synthesizer.

Thus, Applicants not only exemplify the necessary steps and procedures for constructing the antibodies that bind to the NIP45 proteins encompassed by the claimed invention, but also teach additional art-recognized methods and reagents which can be employed in the exemplified steps and procedures to construct any of the NIP45 molecules encompassed by the present invention, including a NIP45 homologs and antigenic peptides.

The Examiner asserts that the disclosure fails to provide an enabling disclosure based on the factors set forth in *In re Wands* 858 F.2d 731, 736 (Fed. Cir. 1988) which must be considered when determining whether an undue amount of experimentation is required to practice the claimed invention. These factors include: (1) the quantity of experimentation necessary; (2) the amount of direction or guidance presented; (3) the presence or absence of working examples; (4) the nature of the invention; (5) the state of the prior art; (6) the predictability or unpredictability of the art; and (7) the breadth of the claims. Applicants respectfully disagree.

With respect to the Examiner's comments concerning factor 1, *i.e.*, the quantity of experimentation necessary to identify NIP45 proteins, as set forth above, Applicants' disclosure is replete with guidance for constructing any NIP45 protein encompassed by the claimed invention. Accordingly, minimal experimentation would have been required at the time of filing to identify NIP45 proteins and construct antibodies to these proteins as claimed by Applicants.

With respect to factor 2, *i.e.*, the amount of direction or guidance presented, the combination of the advanced state of the art at the time of the invention, along with the teachings

of Applicants disclosure, clearly provided sufficient guidance for the ordinarily skilled artisan to have practiced the claimed invention without undue experimentation. Indeed, the Examiner acknowledges that the specification enables the construction and use of a NIP45 protein as set forth in SEQ ID NO:2 and encoded by SEQ ID NO:1. The teachings with respect to these NIP45 proteins could have been applied to any NIP45 molecule in view of the level of skill in the art at the time of filing.

With respect to factor 3, *i.e.*, the presence or absence of working examples, Applicants respectfully point out that the disclosure includes several working examples. The examples illustrate the structural and functional characterization of the NIP45 protein.

With respect to factor 4 and 6, *i.e.*, the nature of the invention and the predictability of the art, the Examiner asserts that there is a great deal of unpredictability associated with identifying NIP45 related sequences. However, Applicants respectfully note that the Examiner acknowledges that a NIP45 protein, *i.e.*, as set forth in SEQ ID NO:2, is sufficiently enabled by the instant specification. Accordingly, as set forth above Applicants' disclosure combined with the state of the art at the time of the invention, would have clearly enabled the skilled artisan to practice the claimed invention. Accordingly, minimal experimentation would have been required at the time

With respect to factor 5, *i.e.*, the state of the art, as set forth above, the combination of Applicants disclosure re the structural and functional characteristics of NIP45 proteins combined with the state of the art was sufficiently advanced that an ordinarily skilled artisan would have been able to have practiced the claimed invention without undue experimentation.

Finally, with respect to factor 7, *i.e.*, the breadth of the claims, Applicants submit that for all the foregoing reasons, the disclosure is commensurate with the scope of the claims.

In summary, Applicants emphasize that enablement is not precluded by the necessity for some experimentation (see, *e.g., In re Wands* 858 F.2d 731, 736 (Fed. Cir. 1988)). For at least the foregoing reasons, application of the *In re Wands* factors to the presently claimed invention clearly establishes that the claimed antibodies are fully enabled.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 33-35 and 46-56 under 35 U.S.C. § 112, first paragraph.

Rejection of Claims 35 Under 35 U.S.C.§ 112, second paragraph

Claim 35 has been rejected under 35 U.S.C. § 112, second paragraph, as lacking proper antecedent basis to the antibody of claim 34. Specifically, the Examiner is of the opinion that "claim 35 is a conjugated or labeled antibody and claim 33 is not a conjugated or labeled antibody."

Applicants respectfully traverse this rejection. However, in the interest of expediting prosecution, Applicants have re-written claim 35 in independent form. The rejection of claim 35 as lacking proper antecedent basis is therefore rendered moot.

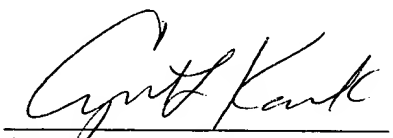
Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 35 under 35 U.S.C. § 112, second paragraph.

CONCLUSION

Reconsideration and allowance of all the pending claims is respectfully requested. If a telephone conversation with Applicants' Attorney would expedite prosecution of the above-identified application, the Examiner is urged to call the undersigned at (617) 227-7400.

Respectfully submitted,

LAHIVE & COCKFIELD, LLP



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APPENDIX A
Version With Markings To Show Changes Made

In the Claims:

Claims 46-56 have been canceled herein without prejudice and claims 33 and 35 have been amended as follows:

33. (Twice Amended) An antibody that specifically binds to a protein comprising the amino acid sequence set forth in SEQ ID NO:2~~, or a portion thereof~~.

35. (Twice Amended) ~~The antibody of claim 34, wherein the~~ An antibody ~~is further~~ coupled to a detectable substance, wherein the antibody specifically binds to a protein comprising the amino acid sequence set forth in SEQ ID NO:2.

APPENDIX A
Pending Claims

33. An antibody that specifically binds to a protein comprising the amino acid sequence set forth in SEQ ID NO:2.

34. The antibody of claim 33, which is a monoclonal antibody.

35. An antibody coupled to a detectable substance, wherein the antibody specifically binds to a protein comprising the amino acid sequence set forth in SEQ ID NO:2.